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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.          | CONFIRMATION NO. |
|--|-------------|----------------------|------------------------------|------------------|
| 09/931,316   | 08/16/2001  | Upendra V. Chaudhari | YOR920010425US1<br>(590.072) | 3719             |
| 35195  | 7590        | 08/07/2006           | EXAMINER                     |                  |
| FERENCE & ASSOCIATES<br>409 BROAD STREET<br>PITTSBURGH, PA 15143 |             |                      | LERNER, MARTIN               |                  |
|  |             |                      | ART UNIT                     | PAPER NUMBER     |
|  |             |                      | 2626                         |                  |

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/931,316

Applicant(s)

CHAUDHARI ET AL.

Examiner

Martin Lerner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 to 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 to 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 to 21 are rejected under 35 U.S.C. 102(e) as being anticipated by *Chaudhari et al.* ('590).

The applied reference has a common assignee and inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). There is a non-identity of inventive entities due to the presence of inventor *Gopinath* and the absence of inventor *Navratil*. This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

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Regarding independent claims 1, 11, and 21, *Chaudhari et al. ('590)* discloses a method, apparatus, and program storage device embodying program instructions, comprising:

“providing a classification system, the classification system including at least one structural parameter and at least one derived function” – a classification technique exploits indirect information about covariance structure and ability to estimate with a small amount of data (column 1, lines 64 to 67); speakers are recognized (i.e. identified, verified, or classified) by maximizing the likelihood of speech training data with respect to a model (column 2, lines 18 to 23) (“providing a classification system”); a model is parameterized by  $\{m_i, \Sigma_i, p_i\}$  (column 4, lines 30 to 47) (“the classification system including at least one structural parameter”); the log likelihood,  $P(X|M^i)$ , is a discriminant function for classification, which is derived from means  $m_i$ , covariances  $\Sigma_i$ , and weights  $p_i$  (column 4, line 59 to column 5, line 30: Equations (3) to (5)) (“at least one derived function”);

“adapting the classification system via adapting the at least one derived function of the classification system” – feature space adaptation utilizes a transformed discriminant function  $\log P(X_T|M_T^i)$  (“the at least one derived function of the classification system”) to adapt the speaker model (column 5, line 31 to column 6, line 19).

Regarding claims 2 and 12, *Chaudhari et al. ('590)* discloses:

“providing a set of trained data” – training data from a source  $j$  produces a model  $M^j$  as an adaptation of the global model using the training data  $\{m_i, \Sigma_i, p_i\}$  (column 4, lines 41 to 45); an initial model is obtained from training data;

“providing a set of observation data” – observations are a sequence of independent and identically distributed random vectors (column 4, lines 65 to 68); an initial model is adapted from additional observation data.

Regarding claims 3 and 13, *Chaudhari et al. ('590)* discloses the log likelihood,  $P(X|M^j)$ , is a discriminant function for classification, which is derived from means  $m_i$ , covariances  $\Sigma_i$ , and weights  $p_i$  (column 4, line 59 to column 5, line 30: Equations (3) to (5)) (“at least one derived function”).

Regarding claims 4 and 14, *Chaudhari et al. ('590)* discloses acoustic feature model transformation for verifying speakers (column 2, lines 13 to 25; column 11, lines 9 to 22).

Regarding claims 5 and 15, *Chaudhari et al. ('590)* discloses the log likelihood,  $P(X|M^j)$ , is a discriminant function for determining which model matches best for an observing vector  $x$  (“an acoustic utterance”) with respect to model  $M^j$  (column 4, lines 59 to 65).

Regarding claims 6 and 16, *Chaudhari et al. ('590)* discloses feature vectors are extracted from an input pattern-based signal provided in real-time and the test data transformation is generated of a pattern-specific representation of the real-time provider

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(column 3, lines 5 to 18; column 9, lines 32 to 52: Figure 5); thus, the implication is that adaptation is performed continuously and in real-time, implicitly.

Regarding claims 7 and 17, *Chaudhari et al. ('590)* discloses model transformation for verifying and classifying speakers (column 2, lines 13 to 25).

Regarding claims 8 and 18, *Chaudhari et al. ('590)* discloses feature vectors are extracted from an input pattern-based signal provided in real-time and the test data transformation is generated of a pattern-specific representation of the real-time provider (column 3, lines 5 to 18; column 9, lines 32 to 52: Figure 5); thus, the implication is that adaptation is performed continuously to new conditions, implicitly.

Regarding claims 9 and 19, *Chaudhari et al. ('590)* discloses a Lincoln Lab Handset Database (LLHDB) was used for matched condition experiments to construct the background model from all telephony microphones in the database (column 11, lines 23 to 42); Applicants' Specification, Page 10, Line 7 to Page 11, Line 3, describes new acoustic conditions or environment only in a general way; thus, a new dataset for adaptation implicitly involves detection of and adaptation to "a new acoustic condition" or "a new acoustic environment".

Regarding claims 10 and 20, *Chaudhari et al. ('590)* discloses speaker verification involves comparing a score to a threshold to determine acceptance or rejection of a speaker (column 11, lines 20 to 22: Figures 8 to 10); meeting a threshold for speaker verification corresponds to "satisfying a present security level in verifying the claimed identity of a speaker."

### ***Response to Arguments***

Applicants' arguments filed 14 September 2005 have been fully considered but they are not persuasive.

Applicants argue that *Chaudhari et al.* ('590) adapts feature spaces and relies on maximum likelihood levels to provide a classification. By contrast, Applicants say their claimed method, apparatus, and program adapts a classification system by relying on score levels obtained from the classification function. Moreover, Applicants maintain that the discriminant function is used in the adaptation of the feature space, not in the adaptation of a classification system in *Chaudhari et al.* ('590). Thus, Applicants conclude there is not suggestion or teaching of adapting a derived function, or adapting any derived function, in conjunction with adaptation of a classification system. These arguments are not persuasive.

Firstly, the limitation of adapting a classification system by relying on score levels is not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicants are attempting to read limitations into their claims from the Specification, where the limitations have no basis in the claims. Moreover, Applicants' Specification does not expressly disclose "score levels". The Specification only refers to likelihoods, not scores. If Applicants believe their Specification discloses "score levels", then they

should specifically point out where the limitation is disclosed in their originally filed Specification.

Secondly, it is maintained that the feature space of *Chaudhari et al.* ('590) is an element of the classification system. *Chaudhari et al.* ('590) discloses repeatedly that the acoustic transformations may be used for a variety of purposes in speech recognition. Included among these purposes are recognition, identification, and classification. (Abstract; Column 1, Lines 64 to 67; Column 2, Lines 3 to 6; Column 2, Lines 18 to 23; Column 4, Lines 59 to 62; Column 9, Lines 3 to 9) Thus, *Chaudhari et al.* ('590) discloses transformations for classification. The feature space is an element of a method and system for classification. That is, the feature space provides a framework or structure for a model of the classification. Thus, adapting the feature space adapts the classification system, too.

Thirdly, the limitation of adapting the classification system by "adapting the at least one derived function of the classification system" should be broadly interpreted. During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550- 51 (CCPA 1969). See MPEP 2111. Here, it is maintained that *Chaudhari et al.* ('590) discloses a feature space is adapted by performing a linear transformation of a discriminant function.



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(Column 5, Line 31 to Column 6, Line 56) Thus, *Chaudhari et al.* ('590) discloses adapting at least one derived function of the classification system, as broadly construed, by transforming a discriminant function.

Accordingly, the rejection of claims 1 to 21 under 35 U.S.C. §102(e) as being anticipated by *Chaudhari et al.* ('590) is proper.

***Conclusion***

This is a Request for Continued Examination (RCE) of Applicants' earlier Application No. 09/931,316. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (571) 272-7608. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

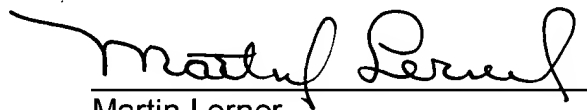
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ML  
7/31/06

A handwritten signature in black ink, appearing to read "Martin Lerner", written over a horizontal line.

Martin Lerner  
Examiner  
Group Art Unit 2626